MEMORANDUM
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To: Ms. Brenda Ardrey, CGFM
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From: Todd Thalhamer, P.E.

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RE: Addendum to the February 14, 2014 Comments on the Evaluation of Possible Impacts of a Potential Subsurface Smoldering Event on the Record of Decision – Selected Remedy for Operable Unit-1 at the West Lake Landfill – Dated January 14, 2014

Following my recent on-site visit to the Bridgeton Sanitary landfill on April 2-3, 2014 and having viewed the area where on March 21, 2014, a vegetation fire occurred at the south edge of the Bridgeton Sanitary Landfill's soil borrow area, a number of new issues related to impacts from a surface fire must be considered with regard to the Engineering Management Support, Inc. (EMSI) Report. During my preliminary assessment, I followed the outline of the EMSI Report and did not fully examine and report on the current site conditions and the issues that need to be evaluated and acted upon should a vegetation fire occur within the West Lake Landfill Complex in St. Louis, Missouri. At a minimum, the US EPA consultant needs to amend the report to include potential impacts to the Operable Units from a surface fire and the potential for such a fire to result in a subsurface smoldering event.

While these conditions were not evaluated nor discussed in the EMSI Report and were possibly not identified in the original scope of work, US EPA's consultant should examine the current site conditions (i.e., presence of brush and other vegetation within the Operable Units 1 and 2; characterization of waste including type and nature of chemicals and chemical compounds present in the waste mass and potential for reactions) and discuss the impacts from a wildland fire occurring within fenced areas of the West Lake Landfill Complex or from land adjacent to the complex.

My understanding is that the waste materials within Operable Unit 1, Area 1and Area 2 in addition to the radiologically impacted materials (RIM) have previously been stated as a combination of construction and demolition waste as well as some level of industrial and municipal solid waste, but to my knowledge these waste materials have never been adequately characterized to determine potential chemical reactions from the impacts of a surface fire which would include reactions to water or fire suppression products.

To further complicate this scenario, US EPA recently stated that RIM is known to exist outside the originally defined waste containment areas. US EPA's consultant needs to amend the report to consider whether a vegetation fire, not directly related to an SSE, has the potential to start within the Operable Areas shown in Figure 1 below or move into the Operable Areas from adjacent properties and should then evaluate and consider, at a minimum, the following questions:

- Has US EPA examined for any radiological uptake in the vegetation that has been allowed to grow within the Operable Units?
- How has US EPA accounted for storm water and erosion control issues in the past? And how would US EPA manage the storm water and erosion control once a fire has removed the vegetative cover from the Operable Units?
- Should the local fire agency even respond to a vegetation fire within the Operable Units? Or does this responsibility fall to US EPA personnel?
- If it is safe for the local fire agency to enter the radiological areas to extinguish a surface fire? What level of protection is needed for personnel to enter these areas?
- Should the vegetation just be allowed to burn off?
- What actions should be taken by the emergency management agencies and first responders to protect the first responders and the surrounding community from such a wildfire (i.e., resulting smoke plume and blowing materials, such as ash)?
- Is it possible for a vegetation fire (surface fire) to start a subsurface smoldering event within the Operable Units?
- What control methods have been implemented to prevent this from occurring? Should the heavy brush within the Operable Units be removed? Is the current cover in the Operable Units sufficient to prevent a surface fire from impacting the unclassified waste?

Lastly, with the recent slope movement at Bridgeton and slope failures at other landfills with smoldering events, the EMSI report should include a discussion of potential impacts from a slope failure or significant slope movement from a smoldering event.

Figure 1. Significant Vegetation Fire Risks at the West Lake Landfill Complex. St. Louis, Missouri. (Source Google Earth, 8/6/2012)